

THERE IS CLAIMED:

1. A rechargeable lithium storage cell including a positive electrode, whose electrochemically active material includes one or more oxides of a transition metal, and a negative electrode, consisting of a conductive support and an active layer containing a binder and an electrochemically active material which is a mixed oxide of lithium and titanium with the general formula $\text{Li}_x\text{Ti}_y\text{O}_4$ in which $0.8 \leq x \leq 1.4$ and $1.6 \leq y \leq 2.2$, in which storage cell said binder is a polymer containing no fluorine.
2. The storage cell claimed in claim 1 wherein said non-fluorinated polymer is soluble in water or capable of forming a stable emulsion in suspension in water.
3. The storage cell claimed in claim 1 wherein said binder contains an elastomer.
4. The storage cell claimed in claim 3 wherein said elastomer is selected from an acrylonitrile/butadiene copolymer and a styrene/butadiene copolymer.
5. The storage cell claimed in claim 3 wherein the proportion of said elastomer is from 30 wt% to 70 wt% of said binder.
6. The storage cell claimed in claim 1 wherein said binder contains a cellulose compound.
7. The storage cell claimed in claim 6 wherein said cellulose compound is carboxymethylcellulose.
8. The storage cell claimed in claim 6 wherein the proportion of said cellulose compound is from 30 wt% to 70 wt% of said binder.
9. The storage cell claimed in claim 1 wherein said binder includes a mixture of an elastomer and a cellulose compound.
10. The storage cell claimed in claim 9 wherein said binder includes a mixture of carboxymethylcellulose and an acrylonitrile/butadiene copolymer.
11. The storage cell claimed in claim 9 wherein said binder includes a mixture of carboxymethylcellulose and a styrene/butadiene copolymer.
12. The storage cell claimed in claim 9 wherein the proportion of said elastomer is from 30 wt% to 70 wt% of said binder and the proportion of said cellulose compound is from 30 wt% to 70 wt% of said binder.
13. The storage cell claimed in claim 9 wherein the proportion of said

elastomer is from 50 wt% to 70 wt% of said binder and the proportion of said cellulose compound is from 30 wt% to 50 wt% of said binder.

14. The storage cell claimed in claim 1 wherein the active material of said positive electrode includes one or more oxides of a transition metal, selected from vanadium oxide, lithium manganese oxide, lithium nickel oxide, lithium cobalt oxide, and mixtures thereof.
15. A method of fabricating a storage cell as claimed in claim 1, including the following steps for producing said negative electrode:
 - placing said binder in the form of a solution or a dispersion in an aqueous solvent,
 - adding said powdered active material and optional fabrication auxiliaries to said solution or dispersion to form a paste,
 - adjusting the viscosity of said paste with water,
 - covering at least one face of said conductive support with paste to form said active layer, and
 - drying and rolling said support covered with said active layer to obtain said electrode.